

# Cloud Latency: A Cloud Based Latency Checking System for the Developers

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**ABSTRACT:** Now a days, the cloud platform plays a very important roles in development environment to implement various applications over servers. The developer should to know the latency to select appropriate server which in turn takes less time and perform the task very quickly. The main objective of this paper is to help the developers to check the latency of Amazon web services (AWS). By knowing the latency of perfect web server it helps the developers in selecting the particular server for their development of applications on cloud based system. It also helps the developers to optimize their services and solutions. Amazon has web server in different countries So, the latency also vary based on various locations of the Amazon servers. In the proposed system we finding the latency of servers based on the parameters such as region name, location of the server and endpoint of the service. Hence, the low latency is one of the main performance parameter for performance optimization in the cloud environment for the developers.

**Keywords:** Latency, AWS (Amazon web servers), optimization, performance, developers.

## 1. INTRODUCTION

Latency is the delay is measured from giving input into a system to get the desired outcome. The term is understood slightly different in various contexts and latency issues also vary from one system to another [1]. Latency greatly affects how usable and enjoyable electronic and mechanical devices as well as communications are. Latency in communication is demonstrated in live transmissions from various points on the earth as the communication hops between a ground transmitter and a satellite and from a satellite to a receiver each take time [2]. People connecting from distances to these live events can be seen to have to wait for responses. This latency is the wait time introduced by the signal travelling the geographical distance as well as over the various pieces of communications equipment [3].

Network latency is an expression of how much time it takes for a packet of data to get from one designated point to another. In some environments (for example, AT&T), latency is measured by sending a packet that is returned to the sender; the round-trip time is considered the latency. Ideally latency is as close to zero as possible [4].

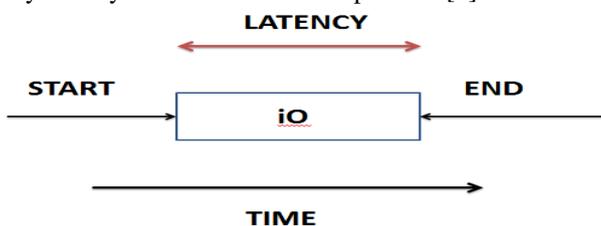


Fig1: Identical way of representation of latency over a time.

AWS is located in 12 geographical regions. US East (North virginia), where the majority of AWS servers are based, US West (northern california), US West(Oregon), Southeast Asia (singapore), East Asia (Tokyo, seoul, Beijing) and

Australia (Sydney). There is also a -GovCloud, based in the Northwestern United States, provided for U.S. government

customers, complementing existing government agencies already using the US east region. Each region wholly contained within a single country and all of its data and services stay within the designated region. Each region has multiple 'Availability zones', which are distinct data centers providing AWS services [15]. Availability zones are isolated from each other to prevent outage from spreading between zones. Several services operate across availability zones while other can be configure to replicate across zones to spread demand and avoid down time from the failures [7]. As in the year 2014, Amazon web services operated an estimated 1.4 million server across 28 availability zones [6].



Fig2: Amazon web servers region map

## 2. EXISTING SYSTEM

Since, the Existing systems are desktop based. We can check the latency of the server using command prompt. But the same is not for the developers as a service. And finding the latency is not based on the cloud and latency is not available in the mobility state. Its only supports static type of allowance of network performance. It is limited for checking only the latency of the servers which is much more important server feature based over location [8]. This System has immense future development scope as it can be integrated with more subsystems for checking cloud features which are still missing. Due to unknowing of latency of cloud many of the organization scale rapidly decreasing the profit based on latency of the cloud [10].

## 3. PROCESS DESCRIPTION

Using Amazon web server locations and their online identity java-script will be done by giving a ping commands to those

servers and their results will be automatically captured as values into tables. Administrator of the system can select for Amazon EC2, simple database and other services in the system and can check for their latency over different servers located in different locations over globe [11]. By selecting low latency of perfect server it helps to improve the optimization and to choose server region.

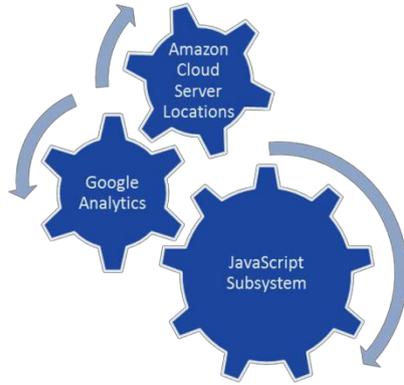


Fig3: Cloud server location analysis

The figure 3 shows the analysis of the latency by making use of Google analytics and Amazon server location name. Google analytics analyze the region name, region location, and end point of the regions. it helps to locate exact server of Amazon over a globe [12].

#### 4. AMAZON WEB SERVICES

Amazon web server is a collection of cloud computing services that make up the on-demand computing platform offered by amazon.com. AWS provides some services based on cloud platform. They are Elastic Cloud Computing (EC2), Simple database, simple storage service (S3), Simple Query Service (SQS), Simple Notification Service (SNS) [15].

##### a. Elastic cloud computing(EC2)

Amazon Elastic Compute Cloud (EC2) forms a central part of Amazon.com's cloud-computing platform, Amazon Web Services (AWS), by allowing users to rent virtual computers on which to run their own computer applications. EC2 encourages scalable deployment of applications by providing a web service through which a user can boot an Amazon Machine Image to configure a virtual machine, which Amazon calls an "instance", containing any software desired [7]. A user can create, launch, and terminate server-instances as needed, paying by the hour for active servers - hence the term "elastic". EC2 provides users with control over the geographical location of instances that allows for latency optimization and high levels of redundancy [13][14].

##### b. Amazon s3

Amazon Simple Storage Service (Amazon S3), provides developers and IT teams with secure, durable, highly-scalable cloud storage. Amazon S3 is easy to use object storage, with a simple web service interface to store and retrieve any amount of data from anywhere on the web. With Amazon S3, you pay only for the storage you actually use. There is no minimum fee and no setup cost.

Amazon S3 offers a range of storage classes designed for different use cases including Amazon S3 Standard for general-purpose storage of frequently accessed data, Amazon S3 Standard - Infrequent Access (Standard - IA) for long-lived, but less frequently accessed data, and Amazon Glacier for long-term archive. Amazon S3 also offers configurable lifecycle policies for managing your data throughout its lifecycle. Once a policy is set, your data will automatically migrate to the most appropriate storage class without any changes to your applications.

Amazon S3 can be used alone or together with other AWS services such as Amazon Elastic Compute Cloud (Amazon EC2) and AWS Identity and Access Management (IAM), as well as data migration services and gateways for initial or ongoing data ingestion. Amazon S3 provides cost-effective object storage for a wide variety of use cases including backup and recovery, near line archive, big data analytics, disaster recovery, cloud applications, and content distribution,

##### c. Simple Notification Service(SNS)

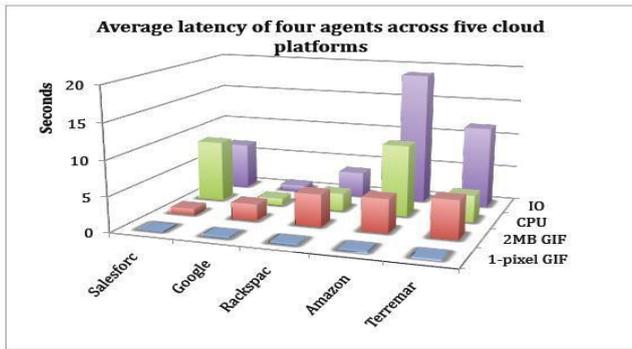
Amazon Simple DB is a distributed database by Amazon.com. It is used as a web service in concert with Amazon Elastic Compute Cloud (EC2) and Amazon S3 and is part of Amazon Web Services as with EC2 and S3, Amazon charges fees for Simple DB storage, transfer, and throughput over the Internet.

## 5. Proposed System

A cloud based system for checking latency of Amazon cloud servers based on different locations is just what the developer are in need of for the performance optimization. It will help them choose the exact server as required. There are many systems for the developers but the system for checking latency is still missing. The implementation using simple resources from Google analytics and Amazon server location details can make it possible.

Cloud platforms are a cloud computing platform by Salesforce, google, amazon, rackspace etc, . These platform offers hosting on same supporting infrastructure that these uses internally for end user products. Cloud Platform provides developer products[3] to build a range of programs from simple websites to complex applications.

The graph1 shows that the average latency of cloud platforms. The latency is detected by speed of the network performance over the time. Compare to other cloud platform amazon is the best cloud platform due to the less delay for different operation performed in between source and destination point [17,18]. which is seen by a user.



Graph1: Comparison of latency of different cloud platforms.

6. IMPLEMENTATION

Checking the latency of the different server is make it possible by google analytics and java script sub system. Google analytics analyses the location of the server and the region name. This system will have massive future if we are integrated with subsystem for checking the cloud features and details of the server located regions. The Figure 5 shows the collaboration of MVC components. Cloud latency has mainly three components they are user, system, and latency. These have a various sub components which are responsible for analysis of delay of the servers. User undergoes to select different services of the amazon web server (AWS). System has front and and back-end view.

That's javascript, html, css. Latency is analysed by a location of the service and the location value measured by timestamp. The analysis performed through a system.

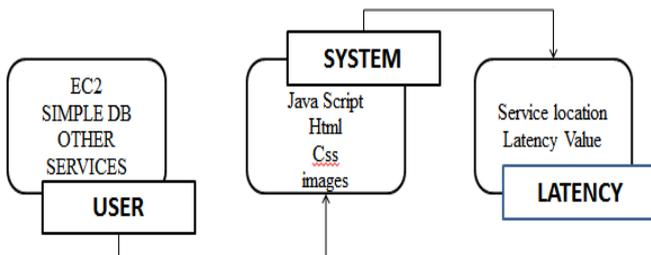


Fig 4: Analysis view of cloud latency

6.1 Methodology for the architecture

Model view controller is a software architectural pattern mostly for implementing user interfaces on computers. It divides a given software application into three interconnected parts, so as to separate internal representations of information from the ways that information is presented to or accepted from the user.

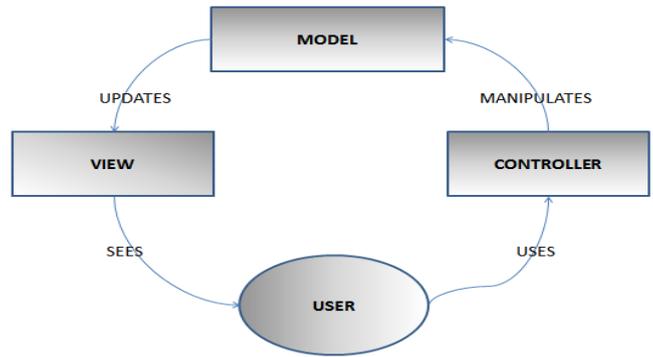


Fig 5: Collaboration of MVC components.

Figure 5 expresses the -core of the solutionll to a problem while allowing it to be adapted for each system. MVC architecture can vary significantly from traditional description.

The MVC are differentiating as, model as cloud server and view as browser and controller is admin in our system. User making the use of controller to manipulates the model at each system level. Model updates the view that's sees by the user. The model works in the loop fashion.

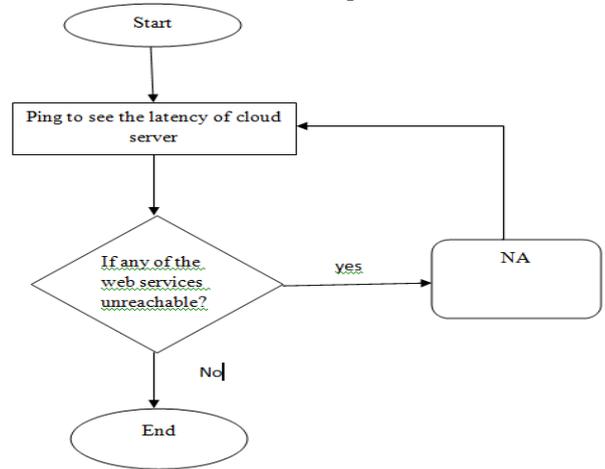


Fig 6: Flow process of cloud latency

Above figure 6 shows the latency process from end- end scenario. Ping is a command to get a latency of web server. The work process of cloud latency tends to get a latency time of each server. The phenomenon runs based on checking the latency of servers in different regions of AWS. If the service available the server will give a timestamp from source and destination. If the service is unreachable to destination point, then it will show NA. then the process again goes to requesting phase with different services. The process will continues upto get a desired latency from services provide by Amazon.

6.1 RESULT

Cloud latency helps for the developers to check the latency of AWS servers. Latency helps to choose the accurate server which takes minimum latency based on data transmission between end points. Resulting outcome explains the choosing servers of Amazon for the different operations based on different services.

7. CONCLUSION

A cloud based system for checking latency of Amazon cloud servers based on different locations is just what developer are in need of for performance optimization. It will help them to choose the exact server as they required. There are many systems in cloud for developers but, system for checking latency is still missing. Implementation using simple resources from Google analytics and Amazon server location detail can make it possible. The System will choose the exact server based on services providing by Amazon web server which is located over a globe.

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